

Electronically Filed On: May 15, 2007

PATENT
Attorney Docket No. 34170-701.501

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application:

Inventor: Peter S. Lu et al.

Application No.: 10/630,590

Filed: July 29, 2003

Title: **METHODS OF DIAGNOSING
CERVICAL CANCER**

Confirmation No.: 4993

Examiner: Lucas, Zachariah

Group Art Unit: 1648

Customer No. 21971

DECLARATION UNDER 37 C.F.R. §1.131

We, Peter S. Lu, Johannes Schweizer, Chamorro Somoza Diaz-Sarmiento, and Michael P. Belmares, declare as follows:

1. We are the inventors of claims 1, 3-8, 10-22 and 24-28 of the patent application identified above and the inventors of the subject matters described and claimed therein.
2. We conceived and reduced to practice in this country the invention claimed in claims 1, 3-8, 10-22 and 24-28 in the above-referenced application prior to September 6, 2001.
3. Prior to September 6, 2001 we conceived that the E6 protein of oncogenic human Papillomavirus (HPV) has a C-terminal domain with a consensus sequence of -X-(S/T)-X-(V/I/L) that should be recognized and specifically bound to by a PDZ domain, such as domain 2 of MAGI-1, while non-oncogenic or low risk HPV E6 sequences should not. We developed assays to assess the binding interactions between the C-terminal domain of E6 protein of various oncogenic and non-oncogenic strains of HPV, such as the "G Assays" described in above-referenced application

serial No. 10/630,590 at pages 43-46, and in provisional application No. 60/309,841 filed on August, 3, 2001 at pages 32-36.

4. Prior to September 6, 2001 we designed and purchased from commercial suppliers peptides (*see Exhibit A* for evidence of purchase with dates obscured) containing the consensus C-terminal sequences derived from various oncogenic strains of HPV, and C-terminal sequences from non-oncogenic strains of HPV. **Table 1** below lists the sequences of such peptides with the C-terminal consensus sequences of oncogenic strains of HPV highlighted in bold. As listed in **Table 1**, besides peptides which have the native sequences of the C-termini of the HPV strains, we also designed peptides that are derived from the native sequences of the C-termini by substituting amino acid residues (especially cysteine residues) outside the consensus 4 amino acid C-terminal sequences with other amino acid residues to avoid complications resulting from aberrant folding of the native peptides due to cross-linking of the cysteine residues that causes aggregation of the peptides. *See* designed peptide sequences labeled with "(modified)" or "(cysteine-free)" in **Table 1**.

Table 1. Sequences of C-terminal peptides derived from E6 protein of various HPV strains.

AVC Name	Sequence	oncogenic
HPV E6 16	WTGRCMSCCRSSRTTRRETQL	Y
HPV E6 16 (Modified)	TGRGMSGGRSSRTTR ET QL	Y
HPV E6 18	HSCCNRAQRERLQRRRETQV	Y
HPV E6 18 (Modified)	SGGNRAQRERLQRRRETQV	Y
HPV-E6 31	GRWTGRCIACWRRPRTETQV	Y
HPV E6 33	CAACWRSARRRRLQRRRETAL	Y
HPV E6 33 (modified)	AAGGRSARGRLQGRRETAL	Y
HPV E6 35	GRWTGRCMSCWKPTRRETEV	Y
HPV E6 35 (cysteine-free)	GRWTGRAMSAWKPTRRETEV	Y
HPV E6 36 (cysteine-free)	RVRNANKGIARQAKHFNWDW	N
HPV-E6 51	CANCWQRTRQRRLQRRNETQV	Y
HPV E6 52	MGRWTGRCSWCWRPPVTTQV	Y
HPV E6 52 (modified)	SEGGRPTRGPRLQGRVTTQV	Y
HPV E6 57	HCMNCAPRCMENAPALRTSH	N
HPV E6 57 (cysteine-free)	HAMNNAAPRAMBNAPALRTSH	N
HPV E6 58	GRWTGRCAVCWRPRRRQTQV	Y
HPV E6 58 (modified)	AVGGRFPARGRLQGRRTQV	Y
HPV E6 63	VHKVRNFKAKCSLCRLYII	N
HPV-E6 66	TGSCLCWRHTSRQATESTV	Y
HPV E6 66 (cysteine-free)	TGSALQAWRHTSRQATESTV	Y
HPV-E6 70	RHCWTSNREDRRIRRETQV	Y
HPV-E6 77	CHWRGSCSLHCWSRCMGQSRQ	N
HPV E6 77 (modified)	GGGRGSGLAGGSRGGGQSRQ	N
HPV-E6 80	QFHKVRRNWKGLCRHCGSTE	N

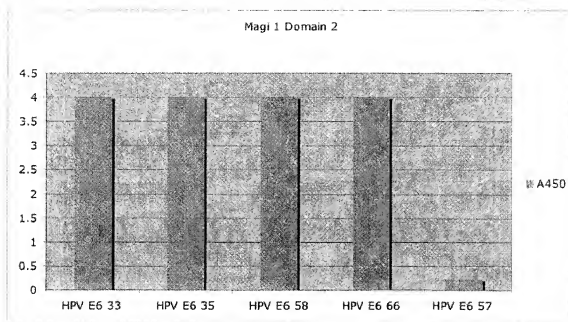
5. Prior to September 6, 2001 we used the G Assays to assess the interactions of peptides (**Table 2**) derived from the C-terminal 19-20 amino acids of E6 protein from oncogenic HPV types 33, 35, 58, 66 and non-oncogenic type 57. Peptide concentrations used in the G-assay were 10 μ M, 1 μ M, 10 μ M, 3 μ M, and 10 μ M, respectively. **Figure 1** summarizes the results of these experiments with the C-terminal consensus sequences of oncogenic strains of HPV highlighted. The absorbance value at 450 nm indicates the amount of HPV peptides bound to MAGI-1 domain 2. **Exhibit B** is a copy of pages from lab notebooks recording such experiments on which the dates have obscured.

6. As shown in **Figure 1**, prior to September 6, 2001 we demonstrated that all four of peptides derived from the E6 protein of oncogenic HPV strains 33, 35, 58 and 66 bound MAGI-1 PDZ domain 2 strongly at 1-10 μ M peptide concentrations. In contrast, the E6 sequence from non-oncogenic HPV type 57 did not bind to MAGI-1 domain 2. In addition, peptides derived from the E6 protein of oncogenic HPV strains 16 and 18 that share the same consensus C-terminal sequence as strains 33, 35, 58 and 66 were later demonstrated to bind to MAGI-1 domain 2. Thus, since the claimed invention is a method or system for detecting the presence of an oncogenic HPV in a sample by using a PDZ domain polypeptide of less than 1000 amino acids in length and comprising the amino acid sequence of MAGI-1 PDZ domain 2, the claimed invention was conceived and reduced to practice prior to September 6, 2001.

Table 2. Sequences of C-terminal peptides derived from E6 protein of various HPV strains.

HPV Type	E6 C-terminal sequence	Derived from Oncogenic HPV E6
HPV 33 (modified)	AAGGRSARGGRLQGRRETAL	Y
HPV 35 (cysteine-free)	GRWTGRAMSAWKPTRRETEV	Y
HPV 58 (cysteine-free)	AVGGRPARGGRLQGRRQTQV	Y
HPV 66 (cysteine-free)	TGSALQAWRHTSRQATESTV	Y
HPV 57 (cysteine-free)	HAMNAAPRAMENAPALRTSH	N

FIGURE 1: Binding strength of HPV E6 peptides with PDZ domain 2 of MAGI-1



7. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

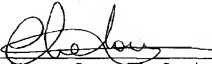
Date: 05/10/2007

By: Peter S. Lu, M.D.
Country of Citizenship: U.S.A.

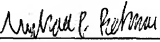
Date: 05/07/2007

By: Johannes Schweizer
Country of Citizenship: Germany

Date: 5/8/07

By: 
Chamorro Somoza Diaz-Sarmiento
Country of Citizenship: Spain

Date: 5/07/07

By: 
Michael P. Belmares
Country of Citizenship: U.S.A.

Custom Peptide Synthesis Certificate of Analysis

Sequence Name: AA69.1 Scale: Research

Sequence:

N⁺ End: ProteinN⁺-IGR/GMS/GGR/SSR/TRR/ETQ/Length: 19L⁻-C⁺

C ⁺ End	

Molecular Weight:

20942318.35

Quantity:

20mg 86810 mmoleForm: Lyophilized powder.

Analysis:

* HPLC

* Amino acid

* Mass spectroscopy

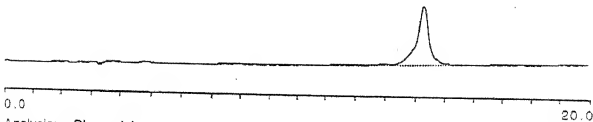
Storage and Stability: Stable for one year at -20 °C.Lot No. 10017449

PLEASE SEE ATTACHED FOR QUALITY CONTROL DATA

Genemed Synthesis, Inc.

213 East Grand Avenue, South San Francisco, CA 94080 U.S.A.

Tel: 650.952-8193 Fax: 650.952-9540 www.genemedsyn.com



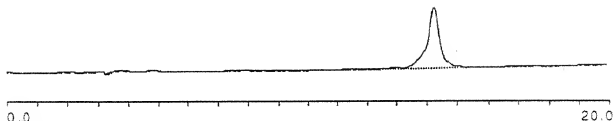
Analysis: Channel A

Peak No.	Time	Type	Height(μV)	Area(μV-sec)	Area%
1	14.255	N4	196364	6235630	100.000
Total Area				6235630	100.000

Data: 0-100 pepanal- 006

Sample: 17449 25 μ l injecteu
Column: Vydac C18 1ml/min
Buffers: A=0.1%TFA; B=0.1%TFA in CH3CN
Gradient: 0-100%B, 20'
Monitor: 220nm, 1.0 AUFS

Processing File: profile#1
Method: 0-100 pepanal
Inject Vol:
Sampling Int: 0.1 Seconds
Data:



Analysis: Channel A

Peak No.	Time	Type	Height(μ V)	Area(μ V-sec)	Area%
1	14.255	N4	196364	<u>6235630</u>	<u>100.000</u>
Total Area				6235630	100.000

Custom Peptide Synthesis

Certificate of Analysis

Sequence Name: AA70.1 Scale: Research

Sequence:

Length: 19

Y1 End	Y2 End
N-SG / NRA / RQE / RLQ / RRR / ETQ /	
V - °C	
°C End	

Molecular Weight:

~~2298~~ 2522.52 3 RK

Quantity:

20 mg 7.91x10⁻² mmoleForm: Lyophilized powder.

Analysis:

- * HPLC _____
- * Amino acid _____
- * Mass spectroscopy _____

Storage and Stability: Stable for one year at -20 °C.Lot No. 10017450

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2800 3000 3200 3400
s (m/z)

Visible light absorption spectrum of the sample showing a broad peak around 280 nm, characteristic of aromatic amino acids.

Laser : 2230

Mirror Ratio 1 0/0

Scans Averaged: 61

PSD Mirror Ratio

Pressure: 6.61e-07

Timed Ion Selector 16.1 Cr

Low Mass Gate OFF

Negative 1-

Date:

Data: 0-100 pepanar-

-016

Sample: 17450 25 μ l injected

Column: Vydac C18 1ml/min

Buffers: A=0.1%TFA; B=0.1%TFA in CH₃CN

Gradient: 0-100%B, 20'

Monitor: 220nm, 1.0 AUFS

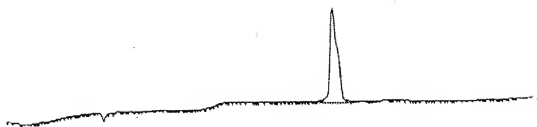
Processing File: profile#1

Method: 0-100 pepanar

Inject Vol:

Sampling Int: 0.1 Seconds

Data:



0.0

Analysis: Channel A

Peak No.	Time	Type	Height(μ V)	Area(μ V-sec)	A
1	10.780	N	96091	<u>1355988</u>	<u>100</u>
Total Area				1355988	100

Custom Peptide Synthesis
Certificate of Analysis

Sequence Name: AA72.1 Scale: Research

Sequence:

Length: 20

N-Tail	Header
N-AAO / GRS / ARG / GRU / QGR / RET /	
AL -- C	
C-Tail	

Molecular Weight:

~~2047~~

, 3

Quantity:

20 mg

111.0 mmole

Form: Lyophilized powder.

Analysis:

- * HPLC
- * Amino acid
- * Mass spectroscopy

Storage and Stability: Stable for one year at -20 °C.

Lot No. 10017517

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Data:

Processing File: profile#1
Method: 0-100 pepanal
Inject Vol:
Sampling Int: 0.1 Seconds

Sample:

17517 25µl injected

C:

Date: 0-100

-014

Column: Vydac C18 1ml/min
Buffers: A=0.1%TFA; B=0.1%TFA in CH3CN
Gradient: 0-100%B, 20'
Monitor: 220nm, 1.0 AUFS
2

Certificate of Analysis

Peptide Name: **AA80.1**

Run Number: **17702**

Sequence: **Biotin-Gly-Arg-Trp-Thr-Gly-Arg-Ala-Met-Ser-Ala-Trp-Lys-Pro-Thr-Arg-Arg-Glu-Thr-Glu-Val-OH**

Theoretical Mass(M+H⁺): ~~2603.0~~ *2600.51*

Mass Found(M+H⁺): **2602.3**

Solubility: **Dissolve 1mg of peptide in 1ml Water**

Appearance: **White Powder**

HPLC Purity: **> *N/A %**

Amount Delivered: **100 mg** *Customer requested unpurified peptide

Storage : **Keep Refrigerated**

Remarks: Not for Human Use. Research Purposes Only.

Release By: *Jaswinder Kaur* Date:

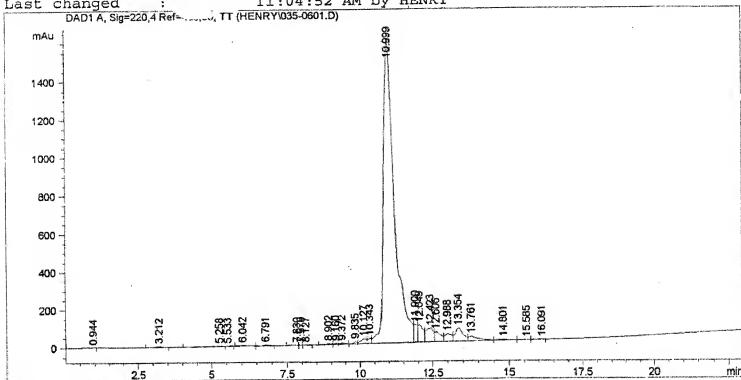
Quality Control

Data File C:\HPCHEM\1\DATA\ ENRY\035-0601.D

Sample Name: AA80.1

```
=====
Injection Date   :                               Seq. Line :    6
Sample Name      : AA80.1                         Vial       :   35
Acq. Operator    : HENRY                           Inj        :    1
                                                    Inj Volume : 5 µl
                                                    Inj Volume : 2 µl

Different Inj Volume from Sequence !      Actual
Sequence File    : C:\HPCHEM\1\SEQUENCE\DEF LC.S
Method           : C:\HPCHEM\1\METHODS\0-100-20.M
Last changed     : 11:04:52 AM by HENRY
=====
```



```
=====
Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
```

Signal 1: DAD1 A, Sig=220,4 Ref=450,80, TT
Results obtained with standard integrator!

Peak #	RetTime [min]	Type	Width [min]	Area [mAu*s]	Height [mAu]	Area %
1	0.944	BV	1.0963	27.31302	2.94576e-1	0.0558
2	3.212	BV	0.2199	65.38581	4.18458	0.1336
3	5.258	PV	0.3324	38.73496	1.52027	0.0792
4	5.533	VB	0.1817	8.00819	7.34552e-1	0.0164
5	6.042	BV	0.1638	48.28724	4.21066	0.0987
6	6.791	PV	0.1581	51.54432	4.71076	0.1053
7	7.830	PV	0.2492	13.29615	6.67421e-1	0.0272
8	7.979	VV	0.0858	3.90877	6.33285e-1	7.988e-3
9	8.127	VB	0.1281	7.46610	7.92417e-1	0.0153
10	8.902	PV	0.1558	68.03886	5.92069	0.1390
11	9.160	VV	0.1115	43.50458	5.49541	0.0889

Custom Peptide Synthesis

Certificate of Analysis

Sequence Name: _____ Scale: _____ Research

Sequence:

N' End:	His
N--AVG / GRP / ARG / GRL / QGR / RQT /	
QV -- C'	
C' End:	

Length: 20

Molecular Weight: 2345.49

Quantity: 2.0 mg 0.514 mmole

Form: Lyophilized powder.

Analysis:

- HPLC
- Amino acid
- Mass spectroscopy

Storage and Stability: Stable for one year at -20 °C.

Lot No. 10017523

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7 ms

1007 MS

Collected

10:31 AM Sample 45

3500

3000

Mass (m/z)

Mirror Ratio: 1:070

PSD Mirror Ratio

Timed Ion Selector: 16.1 OFF

Negative Ions OFF

Laser: 2190

Scans Averaged: 12

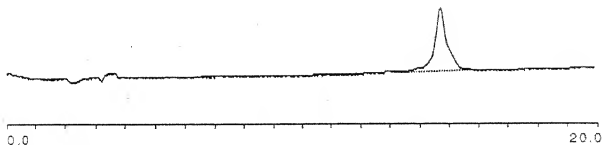
Pressure: 8.00e-07

Low Mass Gate OFF

Date:
Data: 0.000 pepanal- 007

Sample: 17523 25ul injected
Column: Vydac C18 1ml/min
Buffers: A=0.1%TFA; B=0.1%TFA in CH3CN
Gradient: 0-100%B, 20'
Monitor: 220nm, 1.0 AUFS

Processing File: profile#1
Method: 0-100 pepanal
Inject Vol:
Sampling Int: 0.1 Seconds
Data:



Analysis: Channel A

Peak No.	Time	Type	Height(μ V)	Area(μ V-sec)	Area%
1	14.721	N11	112398	3014595	100.000
Total Area				3014595	100.000



Certificate of Analysis

Peptide Name: **AA66.1**
Run Number: **17700**
Sequence: **BIOTIN-Thr-Gly-Ser-Ala-Leu-Gln-Ala-Trp-Arg-His-
Thr-Ser-Arg-Gln-Ala-Thr-Glu-Ser-Thr-Val-OH**

Theoretical Mass(M+H⁺): **2414.7**

Mass Found(M+H⁺): **2414.3**

Solubility: **Dissolve 1mg of peptide in 1ml Water**

Appearance: **White Powder**

HPLC Purity: **> *N/A %**

Amount Delivered: **100 mg *Customer requested unpurified peptide**

Storage : **Keep Refrigerated**

Remarks: Not for Human Use. Research Purposes Only.

Release By: _____

Jaswinder Kaur

Date: _____

Quality Control

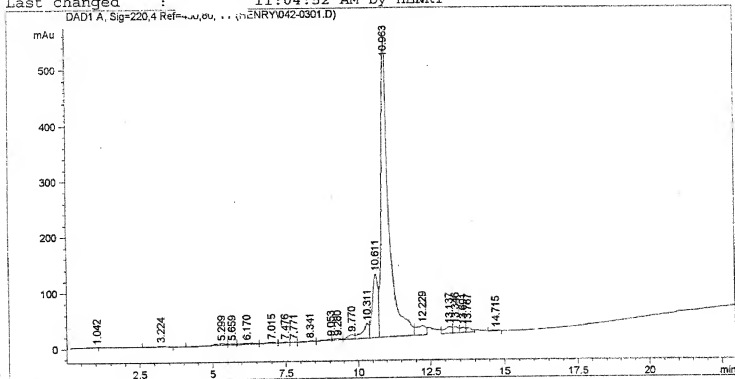
Data File C:\HPCHEM\1\DATA\HENRY\042-0301.D

Sample Name: AA66.1

=====

Injection Date : 7:47:03 PM Seq. Line : 3
Sample Name : AA66.1 Vial : 42
Acq. Operator : HENRY Inj : 1
Inj Volume : 5 µl
Actual Inj Volume : 2 µl

Different Inj Volume from Sequence !
Sequence File : C:\HPCHEM\1\SEQUENCE\DEF LC.S
Method : C:\HPCHEM\1\METHODS\0-100-20.M
Last changed : 11:04:52 AM by HENRY



=====

Area Percent Report

=====

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: DAD1 A, Sig=220,4 Ref=450,80, TT
Results obtained with standard integrator!

Peak #	RetTime [min]	Type	Width [min]	Area [mAu*s]	Height [mAu]	Area %
1	1.042	BV	3.5187	29.64368	1.00569e-1	0.2185
2	3.224	BV	0.2008	29.17170	1.88686	0.2151
3	5.299	BV	0.3742	87.51175	2.88747	0.6452
4	5.659	VV	0.2618	37.78679	2.13710	0.2786
5	6.170	VV	0.4283	68.21159	1.91198	0.5029
6	7.015	VV	0.2753	40.34123	1.83774	0.2974
7	7.476	VV	0.1824	12.75530	9.23668e-1	0.0940
8	7.771	VV	0.1100	3.22723	3.85199e-1	0.0238
9	8.341	PV	0.1796	12.61311	1.15197	0.0930
10	9.053	PV	0.2286	44.93953	2.49896	0.3313
11	9.280	VV	0.2323	45.01051	2.51241	0.3318

Form Page No. 5044

PRISM Matrix ELISA G Assay

Date/Initials 12/20/02

Reagents and Supplies

- Nunc Polypropy 96 well Immuno-plate, Nunc cat#62409-005 batch# 038642
- PBS pH 7.4 (phosphate buffered saline, 8g NaCl, 0.29g KCl, 1.44g NaH₂PO₄, 0.24g KH₂PO₄, add H₂O to 1L and pH 7.4; 0.2 µ filter) AVC lot# 47-88-2
- Assay Buffer: 2% BSA in PBS (20g of bovine serum albumin per liter PBS, fraction V, ICN Biomedicals, cat#015142983 AVC lot# 47-88-2)
- Goat anti-GST polyclonal Ab, stock 5 mg/ml, stored at 4°C, Amersham Pharmacia cat#27-4577-01, lot# 191545
- Dilute 1:1000 in PBS, final concentration 5 µg/ml. Date prepared 12/18/02
- HRP-Streptavidin, 2.5mg/2ml stock stored @ 4°C. 2yrm cat#43-4323, lot# 121333
- Dilute 1:2000 into Assay buffer, final [0.5 µg/ml]
- Wash Buffer, 0.2% Tween 20 in 500mM Tris pH 8.0, AVC lot# 97-107-02
- Biotinylated peptides (HPLC purified, stock solutions store in -20°C freezer #7)
- GST-PBSM proteins (stock stored @ -80°C, after 1st thaw store in -10°C freezer #7)
- TMB (3,3',5,5'-tetramethylbenzidine), ready to use, Dako cat#S1600, lot# 02160
- 0.1M H₂SO₄, Sigma cat.#S1526, AVC lot# 97-85-01
- 12-w multichannel pipettor & tips
- 50 ml magnetic return-vials, Costar#4870
- 50, 15 ml polypropylene conical tubes
- Costar Transstar 96 Costar#7605
- Transstar 96 Cartridge Costar#7610
- Transstar Container
- Clutter tubes
- Molecular Devices microplate reader (450 & 650 nm filters)
- SoftMax Pro software

* When using reagents stored at 4°C or -20°C, remove & keep on ice

Protocol

1. Coat plate with 100 µl of 5 µg/ml anti-GST, ON @ 4°C
2. Dump contents of plate & out tap dry on paper towels
3. Add 200 µl Assay Buffer for 2 hrs at 4°C
4. Prepare proteins and peptides in Assay Buffer
5. Wash 3X with cold PBS*
6. Add proteins at 50 µl per well, incubate 1 to 2 hrs at 4°C
7. Wash 3X with cold PBS*
8. Add peptides at 50 µl per well on ice (write time on plate)
9. Incubate on ice after last peptide has been added for exactly 10 minutes
10. Place at room temp for exactly 20 minutes
11. Prepare HRP-Streptavidin within 10 minutes of time of use
12. Promptly wash 3X with cold PBS
13. Add 100 µl per well of HRP-Streptavidin (write time on plate)
14. Incubate at 4°C for exactly 20 minutes
15. Turn on plate reader and prepare files (store as 0105011.kt)
16. Promptly wash 3X with Wash Buffer
17. Add 100 µl/well TMB substrate (write time on plate)
18. Incubate in dark at room temp for a maximum of 30 minutes
19. Check plate periodically; if necessary take early readings at 650 nm
20. stop reaction with 100 µl of 0.1M H₂SO₄, 30 min. after adding TMB
21. Take last reading at 450 nm soon after stopping reaction
 - * Leave last PBS in wells until ready for next step, i.e. do not let plates dry out

PEPTIDE

	1	2	3	4	5	6	1	2	3	4	5	6
	1	2	3	4	5	6	7	8	9	10	11	12
A	PROTEIN 1											
B	PROTEIN 2											
C	PROTEIN 3											
D	PROTEIN 4											
E	PROTEIN 5											
F	PROTEIN 6											
G	EST+LINKER CONTROL											
H	STANDARD CURVE											

Standard Curve

Column	1,7	2,8	3,9	4,10	5,11	6,12
KIA1634 (117512)	←		0.1 µg/ml			→
DNAM-1 (A22L)	100 µM	10 µM	1 µM	0.1 µM	0.01 µM	0.001 µM

To Page No. 25Witnessed & Understood by me, [Signature]Date Invented by Date Recorded by [Signature]

from Page No. 27

ELISA Plate										Arbor Vita Corp. CONFIDENTIAL									
Arbor Vita Corp. CONFIDENTIAL										Arbor Vita Corp. CONFIDENTIAL									
Page 1 of 22										Page 1 of 22									
Lab	Client	Order	Specimen	Test	Result	Value	Unit	Reference	Notes	Lab	Client	Order	Specimen	Test	Result	Value	Unit	Reference	Notes
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
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10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
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15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
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24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

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From Page No. X

PRISM Matrix ELISA G Assay

Date/Initials 8/7/01 KC, BK

Reagents and Supplies

- Monomers and Surfactants** 045986
- Nunc Polysorb 96 well Immuno plate, Nunc Catalog #0459-005 **batch#**
 - Nunc 96 well 24 channels infusion plate, GC NACI, 0.29KCl, 1.44N NaHCO₃, 0.248
 - K₂HPO₄, add H₂O to 1 L with 7.4; 0.2 mg/liter AVEC lot **97-45-04**
 - Aves Buffer: 2% BSA in PBS (pH of bovine serum albumin per liter PBS, fraction V,
 - ICN Biosciences, cat#C151493 2.5% w/v in water, stored at 4°C, American Pharmacia
 - Cost: 1160.00
 - Cost: 4577-01, lot# **194545**
 - Dilute 1:1000 in PBS, final concentration 5 µg/ml. Date: prepro
 - HRP-Streptavidin, 2.5mg/ml stock stored at 4°C, Zymed cat#4-3733, lot# **97-46-02**
 - 12mg 12000 units streptavidin, lot# 97-46-02
 - 12mg 12000 units streptavidin, lot# 97-46-02
 - Biotinylated peptides (HPLC purified, stock solution store in -20°C freezer #7)
 - OST-PRISM proteins (stock stored at -80°C, after 1st freeze store in -10°C freezer #7)
 - TMB (3,3',5,5' tetramethylbenzidine), ready to use, lot# **07166**
 - 0.1M HEPES, Sigma cat# 161526, AVEC lot# **97-46-03**
 - 12 µl multichannel pipette tips
 - 50 ml reagent reservoirs, Costar#4870
 - 50, 15 ml polypropylene conical tubes
 - Costar Transwell 96 Corning#7616
 - Transwell 96 Corning#7610
 - Transwell Costar#
 - Cluster tubes
 - Molecular Devices microplate reader (450 & 650 nm filters)
 - Selbitt Pro software
 - When using reagents stored at 4°C or -20°C, remove & keep on ice

- SoftMax Pro software
- When using reagents stored at or 4°C or -20°C, remove & keep on ice

Protocol

1. Combine plate with 100 μ l of 5 ng/ml anti-GST, ON @ 4°C
2. Dump contents of plate & tap dry on paper towels
3. Add 200 μ l Assay Buffer for 2 hrs in Assay Buffer
4. Prepare promoglyt and peptides in Assay Buffer
5. Wash 3X with cold PBS*
6. Add substrate at 50 μ l per well, incubate 1 to 2 hrs at 37°C
7. Wash 3X with cold PBS*
8. Add promoglyt at 50 μ l per well on ice (write time on plate)
9. Incubate on ice for last few wells to be added for exactly 10 minutes
10. Add room temp water to stop reaction 20 minutes
11. Prepare HRP-Streptavidin within 10 minutes of time of use
12. Promptly wash 3X with cold PBS
13. Add 100 μ l per well of HRP-Substrate (write time on plate)
14. Incubate 4°C for reaction 20 minutes
15. Turn on plate reader and prepare files (store as 0105011k1)
16. Promptly wash 3X with Wash Buffer
17. Add 100 μ l/well TMB on ice (write time on plate)
18. Incubate at room temp for a maximum of 30 minutes
19. Check plate periodically; if necessary take 50 readings at 650 nm
20. stop reaction with 100 μ l of 0.1M H₂SO₄, 30 min after adding TMB
21. Take 1st reading at 450 nm (this is the reading read)
22. Leave last TMB in wells until ready for next step, i.e. do not let plates dry out

PEPTIDE

	1	2	3	4	5	6	1	2	3	4	5	6
	1	2	3	4	5	6	7	8	9	10	11	12
A	PROTEIN 1											
B	PROTEIN 2											
C	PROTEIN 3											
D	PROTEIN 4											
E	PROTEIN 5											
F	PROTEIN 6											
G	BST-LINKER CONTROL											
H	STANDARD CURVE						STANDARD CURVE					

Standard Curve						
Column	1, 7	2, 8	3, 9	4, 10	5, 11	6, 12
PSD95(1) #143.1	5µg/ml					
Tax AA56L	5µM	1.19µM	0.283µM	0.067µM	0.016µM	0.004µM

1862

$$183 \times 6$$

36.2 } → Neurokinin - differently modified
36.3 } histidylated peptides for comparison

80.1 HFV 26
215 HIV
250 Serotonin
258 Noradrenaline

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Book No. 157

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Date**Invented by**

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Recorded by

Marjorie Jones

Page No. X

PRISM Matrix ELISA G Assay

Initials KC, BK

Reagents and Supplies

Nunc Polysorp 96 well Immuno-plate, Nunc cat#62409-005 batch# 045987Bis pH 7.4 (phosphate buffered saline, 8g NaCl, 0.29g KCl, 1.44g Na_2HPO_4 , 0.24g KH_2PO_4 , add H_2O to 1L and pH 7.4; 0.2 μ filter) AVC lot# 97-93-03

Wash buffer: 2% BSA in PBS (20g of bovine serum albumin per liter PBS, fraction V,

Cyt Biomedicals, cat#C1512943 AVC lot# 97-94-01-04

Don anti-GST polyclonal Ab, stock 5 mg/ml, stored at 4°C, Amerham Pharmacia

cat#27-4777-01, lot# 01575• Dilute 1:1000 in PBS, final concentration 5 μ g/ml. Date preparedHRP-Streptavidin, 2.5mg/2ml stock stored @ 4°C, Zymed cat#43-4323, lot# 0162405Wash Buffer: 0.2% Tween 20 in 50mM Tris pH 8.0, AVC lot# 97-87-3

Biotinylated peptides (HPLC purified, stock solution store in -20°C freezer #7)

DST-PRISM proteins (stock stored @ -80°C, after 1st thaw store in -10°C freezer #7)TMB (0.3% 5,5', tetramethylbenzidine), ready to use, Dako cat#S1600, lot# 071603.18M H_2SO_4 , Sigma cat#S1526, AVC lot# 97-85-01

12-well multichannel pipettor & tips

50 ml reagent reservoirs, Costar#4870

50, 15 ml polypropylene conical tubes

Costar Transax 96 Costar#7605

Transax 96 Cartridge Costar#7610

Cluster tubes

Molecular Devices microplate reader (450 & 650 nm filters)

SoftMax Pro software

use using reagents stored at or 4°C or -20°C, remove & keep on ice

Protocol

Cool plate with 100 μ l of 5 μ g/ml anti-GST, ON @ 4°C

Dump contents of plate & cut up dry on paper towels

Add 200 μ l Assay Buffer for 2 hrs at 4°C

Prepare proteins and peptides in Assay Buffer

Wash 3X with cold PBS*

Add proteins at 50 μ l per well, incubate 1 to 2 hrs at 4°C

Wash 3X with cold PBS*

Add peptides at 50 μ l per well on ice (write time on plate)

Incubate on ice after last peptide has been added for exactly 10 minutes

Place at room temp for exactly 20 minutes

Prepare HRP-Streptavidin within 10 minutes of time of use

Promptly wash 3X with cold PBS

Add 100 μ l per well of HRP-Streptavidin (write time on plate)

Incubate at 4°C for exactly 20 minutes

Turn on plate reader and prepare files (store as 010501)1k11)

Promptly wash 5X with Wash Buffer

Add 100 μ l/well TMB substrate (write time on plate)

Incubate in dark at room temp for a maximum of 30 minutes

Check plate periodically; if necessary take early readings at 650 nm

stop reaction with 100 μ l of 0.18M H_2SO_4 , 30 min. after adding TMB

Take last reading at 450 nm soon after stopping reaction

• Leave last PBS in wells until ready for next step,

i.e. do not let plates dry out

PEPTIDE

	1	2	3	4	5	6	1	2	3	4	5	6
	1	2	3	4	5	6	7	8	9	10	11	12
A	PROTEIN 1											
B	PROTEIN 2											
C	PROTEIN 3											
D	PROTEIN 4											
E	PROTEIN 5											
F	PROTEIN 6											
G	EST + LIVER CONTROL											
H	STANDARD CURVE											

Standard Curve

Column	1, 7	2, 8	3, 9	4, 10	5, 11	6, 12
PSD95(1) #143.1						
Tex AA50L	5pM	1.19pM	0.283pM	0.067pM	0.016pM	0.004pM

To Page No. 18

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

Margorie Jones

K. M. Jones

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Marigold Jones

Recorded by *He Muine Carlson*